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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/725,126	TYLDESLEY ET AL.	
	Examiner	Art Unit	
	KABIR A. TIMORY	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7, 9-15 and 24-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7,9-15 and 24-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments with respect to claims 1, 3, 4, 5, 7-15, and 24-26 have been considered but are moot in view of new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-7, 9-14, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irvine et al. (US 2002/0191695) in view of Lane et al. (US 5,933,567).

Regarding claim 1:

As shown in figure 1, Irvine et al. discloses a method comprising:

- for each of said video frames, generating frame data representative of said each video frame (paragraph 0011, lines 1-7 & paragraph 0028, lines 1-8);
- transforming said frame data to obtain transform coefficients of said frame data (paragraph 0008, lines 5-8 and paragraph 0026, lines 13-15);

- assembling quadtrees of said transform coefficients, each of said quadtrees including a group of said transform coefficients associated with an equivalent spatial location in said each video frame (paragraph 0042, lines 1-12);
- separately coding said quadtrees to form coded quadtree coefficient groups (paragraph 0042, lines 1-12); and
- distributing said coded quadtree coefficient groups among said multiple channels for transmission, said distributing operation including assigning said coded quadtree coefficient groups to said multiple channels such that contiguous portions of said frame data will be transmitted over different ones of said multiple channels (paragraph 0028, lines 1-8, and paragraph 0029, lines 1-20).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching a method of facilitating transmission of video frames over multiple channels in a communication system; distributing said coded quadtree coefficient groups among said multiple channels for transmission.

However, Lane et al., in the same field of endeavor, teaches a method of facilitating transmission of video frames over multiple channels in a communication system; distributing said coded quadtree coefficient groups among said multiple channels for transmission (col 22, lines 62-67).

One of ordinary skill in the art would have clearly recognized that transmission of digital data such as video requires significant amount of bandwidth. Typically wireless channels exhibits a lower bandwidth and higher error rate than wired channels. In order to provide improved error rate and more bandwidth for transmission of digital data such

as video, it would have been obvious to one ordinary skill in the art at the time the invention was made to use plurality of traffic channels for video transmission taught by Lane et al. in the video transmission of the system above. By using multiple channels for transmission of digital date, we improve the quality of service and transmit the video signal with less error rate.

Regarding claim 3:

Irvine et al. further discloses wherein:

- said generating operation generates said frame data and motion vectors (paragraph 0009, lines 4-15); and said method further comprises:
- forming blocks of said motion vectors (paragraph 0009, lines 4-15);
- separately coding said blocks to form coded motion vector blocks (paragraph 0009, lines 4-15); and
- distributing said coded motion vector blocks (the compressed image signal is interpreted to be motion vector blocks) (paragraph 0053, lines 1-3).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching distributing among multiple channels transmission.

However, Lane et al., in the same field of endeavor, teaches distributing among multiple channels transmission (col 22, lines 62-67).

One of ordinary skill in the art would have clearly recognized that transmission of digital data such as video requires significant amount of bandwidth. Typically wireless channels exhibits a lower bandwidth and higher error rate than wired channels. In order to provide improved error rate and more bandwidth for transmission of digital data such

as video, it would have been obvious to one ordinary skill in the art at the time the invention was made to use plurality of traffic channels for video transmission taught by Lane et al. in the video transmission of the system above. By using multiple channels for transmission of digital date, we improve the quality of service and transmit the video signal with less error rate.

Regarding claim 4:

Irvine et al. further discloses utilizing a Huffman coding algorithm to obtain said coded motion vector blocks (paragraph 0044, lines 1-2).

Regarding claim 5:

As shown in figure 1, Irvine et al. discloses a method of facilitating transmission of video frames over multiple channels in a communication system, said method comprising:

- for each of said video frames, generating frame data and motion vectors representative of said each video frame (paragraph 0011, lines 1-7 & paragraph 0028, lines 1-8);
- transforming said frame data to obtain transform coefficients of said frame data (paragraph 0008, lines 5-8 and paragraph 0026, lines 13-15);
- assembling quadtrees of said transform coefficients, each of said quadtrees including a group of said transform coefficients associated with an equivalent spatial location in said each video frame (paragraph 0042, lines 1-12);
- separately coding said quadtrees to form coded quadtree coefficient groups (paragraph 0042, lines 1-12);

- forming blocks of said motion vectors (108 in figure 1, paragraph 0011, lines 1-7 & paragraph 0028, lines 1-8);
- separately coding said blocks to form coded motion vector blocks (paragraph 0011, lines 1-7, paragraph 0028, lines 1-8, and paragraph 0042, lines 1-12);
- distributing said coded quadtree coefficient groups and said coded motion vector blocks among said multiple channels for transmission (paragraph 0028, lines 1-8, and paragraph 0029, lines 1-20).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching assigning said coded motion vector blocks to said multiple channels such that adjacent portions of said motion vectors will be transmitted over different ones of said multiple channels.

However, Lane et al., in the same field of endeavor, teaches assigning said coded motion vector blocks to said multiple channels such that adjacent portions of said motion vectors will be transmitted over different ones of said multiple channels (col 22, lines 62-67).

One of ordinary skill in the art would have clearly recognized that transmission of digital data such as video requires significant amount of bandwidth. Typically wireless channels exhibits a lower bandwidth and higher error rate than wired channels. In order to provide improved error rate and more bandwidth for transmission of digital data such as video, it would have been obvious to one ordinary skill in the art at the time the invention was made to use plurality of traffic channels for video transmission taught by Lane et al. in the video transmission of the system above. By using multiple channels

for transmission of digital date, we improve the quality of service and transmit the video signal with less error rate.

Regarding claim 6:

As shown in figure 1, Irvine et al. discloses a method of facilitating transmission of video frames over multiple channels in a communication system, said method comprising:

- for each of said video frames, generating frame data and motion vectors representative of said each video frame (paragraph 0011, lines 1-7 & paragraph 0028, lines 1-8);
- transforming said frame data to obtain transform coefficients of said frame data (paragraph 0008, lines 5-8 and paragraph 0026, lines 13-15);
- assembling quadtrees of said transform coefficients, each of said quadtrees including a group of said transform coefficients associated with an equivalent spatial location in said each video frame (paragraph 0042, lines 1-12);
- separately coding said quadtrees to form coded quadtree coefficient groups (paragraph 0042, lines 1-12);
- forming blocks of said motion vectors (paragraph 0011, lines 1-7 & paragraph 0028, lines 1-8);
- separately coding said blocks to form coded motion vector blocks (paragraph 0011, lines 1-7, paragraph 0028, lines 1-8, and paragraph 0042, lines 1-12); and
- distributing said coded quadtree coefficient groups and said coded motion vector blocks among said multiple channels for transmission, wherein said coded quadtree

coefficient groups are distributed among said multiple channels independent from said coded motion vector blocks (paragraph 0028, lines 1-8, and paragraph 0029, lines 1-20).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching distributing said coded quadtree coefficient groups among said multiple channels for transmission.

However, Lane et al., in the same field of endeavor, teaches distributing said coded quadtree coefficient groups among said multiple channels for transmission (col 22, lines 62-67).

One of ordinary skill in the art would have clearly recognized that transmission of digital data such as video requires significant amount of bandwidth. Typically wireless channels exhibits a lower bandwidth and higher error rate than wired channels. In order to provide improved error rate and more bandwidth for transmission of digital data such as video, it would have been obvious to one ordinary skill in the art at the time the invention was made to use plurality of traffic channels for video transmission taught by Lane et al. in the video transmission of the system above. By using multiple channels for transmission of digital date, we improve the quality of service and transmit the video signal with less error rate.

Regarding claim 7:

Irvine et al. further discloses forming said quadtrees into 16 x 16 coding blocks prior to said coding operation (paragraph 0025, lines 3-8).

Regarding claim 9:

Irvine et al. further discloses wherein said coding operation comprises:

- assembling said coded quadtree coefficient groups into packets (data block is interpreted to be packets) (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18);
- for each of said packets, assigning one of said multiple channels for transmission of said each packet (104 in figure 1); and
- forwarding said each packet toward said assigned one of said multiple channels (108 and 104 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching said multiple channels for transmission of said each packet.

However, Lane et al., in the same field of endeavor, teaches said multiple channels for transmission of said each packet (figure 8(b), col 22, lines 62-67).

One of ordinary skill in the art would have clearly recognized that transmission of digital data such as video requires significant amount of bandwidth. Typically wireless channels exhibits a lower bandwidth and higher error rate than wired channels. In order to provide improved error rate and more bandwidth for transmission of digital data such as video, it would have been obvious to one ordinary skill in the art at the time the invention was made to use plurality of traffic channels for video transmission taught by Lane et al. in the video transmission of the system above. By using multiple channels for transmission of digital date, we improve the quality of service and transmit the video signal with less error rate.

Regarding claim 10:

Irvine et al. further discloses:

- assembling said coded quadtree coefficient groups into packets (paragraph 0042, lines 1-12);
- attaching a packet identifier to each of said packets prior to said distributing operation (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18);
- reconstructing said each video frame at said decoder from said received packets in response to said packet identifier (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching receiving said packets at a decoder via said multiple channels.

However, Lane et al., in the same field of endeavor, teaches receiving said packets at a decoder via said multiple channels (figure 8(b), col 22, lines 62-67).

One of ordinary skill in the art would have clearly recognized that transmission of digital data such as video requires significant amount of bandwidth. Typically wireless channels exhibits a lower bandwidth and higher error rate than wired channels. In order to provide improved error rate and more bandwidth for transmission of digital data such as video, it would have been obvious to one ordinary skill in the art at the time the invention was made to use plurality of traffic channels for video transmission taught by Lane et al. in the video transmission of the system above. By using multiple channels

for transmission of digital date, we improve the quality of service and transmit the video signal with less error rate.

Regarding claim 11:

As shown in figure 1, Irvine et al. discloses a method of facilitating transmission of video frames over multiple channels in a communication system, said method comprising:

- for each of said video frames, generating frame data representative of said each video frame (paragraph 0011, lines 1-7 & paragraph 0028, lines 1-8);
- transforming said frame data to obtain transform coefficients of said frame data (paragraph 0008, lines 5-8 and paragraph 0026, lines 13-15);
- assembling quadtrees of said transform coefficients, each of said quadtrees including a group of said transform coefficients associated with an equivalent spatial location in said each video frame (paragraph 0042, lines 1-12);
- separately coding said quadtrees to form coded quadtree coefficient groups (paragraph 0042, lines 1-12);
- assembling said coded quadtree coefficient groups into packets (data block is interpreted to be packets) (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18);
- attaching a packet identifier to each of said packets prior to said distributing operation (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18);

- distributing said packets of said coded quadtree coefficient groups among said multiple channels for transmission (104 in figure 1); and
- reconstructing said each video frame at said decoder from said received packets in response to said packet identifier (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18), said reconstructing operation including:
- determining an unsuccessful transmission of one of said packets (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18); and
- forming an estimate of said transform coefficients of said one of said packets in response to adjacent ones of said transform coefficients of others of said packets received via others of said multiple channels (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching receiving said packets at a decoder via said multiple channels.

However, Lane et al., in the same field of endeavor, teaches receiving said packets at a decoder via said multiple channels (figure 8(b), col 22, lines 62-67).

One of ordinary skill in the art would have clearly recognized that transmission of digital data such as video requires significant amount of bandwidth. Typically wireless channels exhibits a lower bandwidth and higher error rate than wired channels. In order to provide improved error rate and more bandwidth for transmission of digital data such as video, it would have been obvious to one ordinary skill in the art at the time the

invention was made to use plurality of traffic channels for video transmission taught by Lane et al. in the video transmission of the system above. By using multiple channels for transmission of digital date, we improve the quality of service and transmit the video signal with less error rate.

Regarding claim 12:

As shown in figure 1, Irvine et al. discloses a method of facilitating transmission of video frames over multiple channels in a communication system, said method comprising:

- for each of said video frames, generating frame data and motion vectors representative of said each video frame (paragraph 0011, lines 1-7 & paragraph 0028, lines 1-8);
- transforming said frame data to obtain transform coefficients of said frame data (paragraph 0008, lines 5-8 and paragraph 0026, lines 13-15);
- assembling quadtrees of said transform coefficients, each of said quadtrees including a group of said transform coefficients associated with an equivalent spatial location in said each video frame (paragraph 0042, lines 1-12);
- separately coding said quadtrees to form coded quadtree coefficient groups blocks (paragraph 0011, lines 1-7, paragraph 0028, lines 1-8, and paragraph 0042, lines 1-12);
- assembling said coded quadtree coefficient groups into first packets (data block is interpreted to be packets) (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18);

- attaching a first packet identifier to each of said first packets prior to said distributing operation; forming blocks of said motion vectors (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18);
- separately coding said blocks to form coded motion vector blocks (paragraph 0042, lines 1-12);
- assembling said coded motion vector blocks into second packets (data block is interpreted to be packets) (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18);
- attaching a second packet identifier to each of said second packets (data block is interpreted to be packets) (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18);
- distributing said first packets and said second packets among said multiple channels for transmission (paragraph 0028, lines 1-8, and paragraph 0029, lines 1-20); and
- reconstructing said each video frame from said first and second packets in response to said first and second packet identifiers (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching receiving said first packets and said second packets at said decoder via said multiple channels.

However, Lane et al., in the same field of endeavor, teaches receiving said first packets and said second packets at said decoder via said multiple channels (figure 8(b), col 22, lines 62-67).

One of ordinary skill in the art would have clearly recognized that transmission of digital data such as video requires significant amount of bandwidth. Typically wireless channels exhibits a lower bandwidth and higher error rate than wired channels. In order to provide improved error rate and more bandwidth for transmission of digital data such as video, it would have been obvious to one ordinary skill in the art at the time the invention was made to use plurality of traffic channels for video transmission taught by Lane et al. in the video transmission of the system above. By using multiple channels for transmission of digital date, we improve the quality of service and transmit the video signal with less error rate.

Regarding claim 13:

Irvine et al. further discloses:

- determining an unsuccessful transmission of one of said second packets (data block is interpreted to be packets) (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18); and
- estimating said motion vectors of said one of said second packets from an average of surrounding ones of said motion vectors of others of said second packets received via others of said multiple channels (paragraph 0028, lines 1-8, and paragraph 0029, lines 1-20).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching said second packets received via others of said multiple channels.

However, Lane et al., in the same field of endeavor, teaches said second packets received via others of said multiple channels (figure 8(b), col 22, lines 62-67).

One of ordinary skill in the art would have clearly recognized that transmission of digital data such as video requires significant amount of bandwidth. Typically wireless channels exhibits a lower bandwidth and higher error rate than wired channels. In order to provide improved error rate and more bandwidth for transmission of digital data such as video, it would have been obvious to one ordinary skill in the art at the time the invention was made to use plurality of traffic channels for video transmission taught by Lane et al. in the video transmission of the system above. By using multiple channels for transmission of digital date, we improve the quality of service and transmit the video signal with less error rate.

Regarding claim 14:

Irvine et al. further discloses wherein said reconstructing operation comprises adaptively buffering (memory is interpreted to be buffering) said received packets (data block is interpreted to be packets) (108 in figure 1, paragraph 0008, lines 1-11, paragraph 0020, lines 1-8, paragraph 0025, lines 1-18, paragraph 0064, lines 7-16).

Regarding claim 24:

As shown in figure 1, Irvine et al. discloses a system for facilitating transmission of video frames over multiple channels in a communication network, said system comprising:

- an input for receiving each of said video frames (figure 1);
- a processor in communication with said input for generating frame data representative of said each video frame (paragraph 0064, lines 7-16);

- a wavelet transformer in communication with said processor for transforming said frame data to obtain wavelet coefficients of said frame data (paragraph 0008, lines 1-11);
- a quadtree-based compressor for receiving said wavelet coefficients and assemblinq quadtrees of said wavelet coefficients, each of said quadtrees including a group of wavelet coefficients associated with an equivalent spatial location in said each video frame (paragraph 0008, lines 1-11, paragraph 0029, lines 1-20);
- a coder for separately coding said quadtrees to form coded quadtree coefficient groups (118 in figure 1); and
- an output interface in communication with said coder for receiving said coded guadtree coefficient groups, said output interface assigning said coded quadtree coefficient groups to said multiple channels such that adjacent portions of said frame data will be transmitted over different ones of said multiple channels (paragraph 0029, lines 1-20);
- an input interface for receiving transmitted packets of coded quadtree coefficient groups from a second system via said multiple channels (figure 1);
- buffer elements in communication with said input interface, one each of said buffer elements being associated with one each of said multiple channels, said input interface forwarding said transmitted coded quadtree coefficient groups received at ones of said multiple channels toward said buffer elements associated with said ones of said multiple channels (paragraph 0064, lines 7-16);

- a decoder in communication with said buffer elements for receiving said transmitted coded quadtree coefficient groups and reconstructing second video frames represented by said transmitted coded quadtree coefficient groups (120 in figure 1).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching an estimator in communication with said decoder, wherein upon determination of an unsuccessful transmission of one of said packets, said estimator forms an estimate of said transmitted coded quadtree coefficient groups of said one of said packets in response to adjacent ones of said transmitted quadtree coefficient groups of others of said packets received via said multiple channels.

However, Lane et al., in the same field of endeavor, teaches an estimator in communication with said decoder, wherein upon determination of an unsuccessful transmission of one of said packets, said estimator forms an estimate of said transmitted coded quadtree coefficient groups of said one of said packets in response to adjacent ones of said transmitted quadtree coefficient groups of others of said packets received via said multiple channels (col 7, lines 1-27, col 19, lines 59-67, col 20, lines 1-6).

One of ordinary skill in the art would have clearly recognized that in a wireless or satellite communication system estimation method is used to estimation transmission conditions such as bit error rate, transmission failure and so on.

To provide accurate compensation for data transmission, it would have been obvious to one ordinary skill in the art at the time the invention was made to use estimators as taught by Lane et al. in the video transmission of the system above.

Using channel estimator is beneficial because it provides means for estimating transmission channels conditions.

Regarding claim 25:

A system for facilitating transmission of video frames over multiple channels in a communication network, said system comprising:

- an input for receiving each of said video frames (figure 1);
- a processor in communication with said input for generating frame data representative of said each video frame (paragraph 0064, lines 7-16);
- a wavelet transformer in communication with said processor for transforming said frame data to obtain wavelet coefficients of said frame data (paragraph 0008, lines 1-11);
- a quadtree-based compressor for receiving said wavelet coefficients and assembling quadtrees of said wavelet coefficients, each of said quadtrees including a group of wavelet coefficients associated with an equivalent spatial location in said each video frame (paragraph 0008, lines 1-11, paragraph 0029, lines 1-20);
- a coder for separately coding said quadtrees to form coded quadtree coefficient groups (118 in figure 1); and
- an output interface in communication with said coder for receiving said coded quadtree coefficient groups, said output interface assigning said coded quadtree coefficient groups to said multiple channels such that adjacent portions of said frame data will be transmitted over different ones of said multiple channels (figure 1, paragraph 0029, lines 1-20);

- an input interface for receiving transmitted first packets of coded quadtree coefficient groups and second packets of motion vector blocks from a second system via said multiple channels (figure 1);
- buffer elements in communication with said input interface, one each of said buffer elements being associated with one each of said multiple channels, said input interface forwarding said transmitted coded quadtree coefficient groups received at ones of said multiple channels toward said buffer elements associated with said ones of said multiple channels (paragraph 0064, lines 7-16); and
- a decoder in communication with said buffer elements for receiving said first and second packets and reconstructing said second video frames from said first and second packets (120 in figure 1).

Regarding claim 26:

Irvine et al. discloses all of the subject matter as described above except for specifically teaching an estimator in communication with said decoder, wherein upon determination of an unsuccessful transmission of one of said second packets, said estimator forms an estimate of said motion vector blocks of said one of said second packets from an average of surrounding ones of said motion vectors of others of said second packets received via said multiple channels.

However, Lane et al., in the same field of endeavor, teaches an estimator in communication with said decoder, wherein upon determination of an unsuccessful transmission of one of said second packets, said estimator forms an estimate of said motion vector blocks of said one of said second packets from an average of surrounding

ones of said motion vectors of others of said second packets received via said multiple channels (col 7, lines 1-27, col 19, lines 59-67, col 20, lines 1-6).

One of ordinary skill in the art would have clearly recognized that in a wireless or satellite communication system estimation method is used to estimation transmission conditions such as bit error rate, transmission failure and so on.

To provide accurate compensation for data transmission, it would have been obvious to one ordinary skill in the art at the time the invention was made to use estimators as taught by Lane et al. in the video transmission of the system above. Using channel estimator is beneficial because it provides means for estimating transmission channels conditions.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Irvine et al. in view of Wu et al. as applied to claim 1 above, and further in view of Jacquin et al. (US Patent Number 6,625,217).

Regarding claim 8:

Irvine et al. further discloses:

said transforming operation comprises performing a wavelet transform such that said transform coefficients are wavelet coefficients (paragraph 0008, lines 1-11).

Irvine et al. discloses all of the subject matter as described above except for specifically teaching said coding operation comprises utilizing a zerotree wavelet coding algorithm.

However, Jacquin et al., in the same field of endeavor, teaches said coding operation comprises utilizing a zerotree wavelet coding algorithm (column 1, lines 22-29).

One of ordinary skill in the art would have clearly recognized that generally, two classes of image coding algorithms typically provide excellent performance on images: tree-structured wavelet based algorithms and frequency and space-frequency adaptive algorithms. Both algorithms are very good at exploiting inter-band correlation in wavelet decomposition by efficiently representing strings of insignificant coefficients referred to as zerotrees or spatial hierarchical trees. In order to provide excellent performance on images, it would have been obvious to one ordinary skill in the art at the time the invention was made to use zerotree wavelet coding algorithm taught by Wu et al. in the video transmission of the system above. By using zerotree wavelet coding algorithm, we improve the quality of image. Moreover zerotree coding provides a compact multi-resolution of significance maps and it allows the successful prediction of insignificant coefficients across scales to be efficiently represented.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Irvine et al. in view of Lane et al. as applied to claim 1 above, and further in view of Wu et al. (US 7,016,337).

Regarding claim 15:

Irvine et al. and lane et al. disclose all of the subject matter as described above except for specifically teaching wherein said communication system is a satellite-based communication network and said multiple channels are wireless voice channels managed by said satellite-based communication network.

However, Wu et al., in the same field of endeavor, teaches wherein said communication system is a satellite-based communication network and said multiple channels are wireless voice channels managed by said satellite-based communication network (figure 5A, column 1, lines 20-27).

One of ordinary skill in the art would have clearly recognized there are presently a variety of different communication channels for transmitting or transporting video data. For instance, communication channels such as satellite communication and wireless digital communication are all well known for transmission of voice, data and video. The communication between two devices is established by using a communication channel such as traffic channel. To provide connection and communication links between devices, it would have been obvious to one ordinary skill in the art at the time the invention was made to establish the transmission links by using mechanism such as satellite and wireless channels as taught by Wu et al. in the video transmission of the system above. Using wireless and satellite channels are advantageous because they convey properly formatted digital information from one point to another.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KABIR A. TIMORY whose telephone number is (571)270-1674. The examiner can normally be reached on 6:30 AM - 3:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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